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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/725,914	12/01/2003	Gerhard Karl Strauch	03345- P0045A	3152

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EXAMINER

ARANCIBIA, MAUREEN GRAMAGLIA

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 11/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/725,914

Applicant(s)

STRAUCH, GERHARD KARL

Examiner

Maureen G. Arancibia

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 9/12/05.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I, Claims 1 and amended claims 3-14, in the reply filed on 12 September 2005 is acknowledged.
2. The cancellation on non-elected claim 2 in the amendment filed on 12 September 2005 is noted.

Specification

3. The disclosure is objected to because of the following informalities: In paragraph 5 of the Specification, Applicant refers to the "method specified in Claim 1 and the apparatus specified in Claim 2." Since the content and language of the claims changes during prosecution (ex. Claim 2 has already been cancelled), it is suggested to amend this statement to explicitly refer to the method or apparatus itself.

Appropriate correction is required.

Claim Objections

4. Claim 1 is objected to because of the following informalities: It is suggested to change the phrase "A process" on Line 1 to "A method" to maintain consistent terminology with the other claims. Claims 3-12 are objected to due to their dependence on Claim 1. Appropriate correction is required.
5. Claim 4 is further objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Specifically, Claim 3 recites that the temperature is the same on both sides of the substrate during the temperature-influencing action, while Claim 4, which depends on Claim 3, recites that the temperature is different on both sides. For the purposes of the following examination on the merits, Claim 4 has been interpreted as being dependent on Claim 1.

6. Claim 9 is further objected to because of the following informalities: it appears that the phrase "one or more of the preceding claims" should be deleted. For the purposes of the following examination on the merits, Claim 9 has been considered to depend on Claim 8. Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. **Claims 6-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

Claim 6 recites the limitation "temperature-influencing device" in Lines 2-3. There is insufficient antecedent basis for this limitation in the claim. The lack of antecedent basis appears to be due to the cancellation of Claim 2. For the purposes of the following examination on the merits, this phrase has been interpreted as referring to a temperature-influencing device (heat source or heat sink) disposed on either side of the substrate. Claims 7-12 are rejected due to their dependence on Claim 6. Appropriate correction is requested.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1 and 3-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,183,565 to Granneman et al. in view of U.S. Patent 5,318,801 to Snail et al.

In regards to Claims 1, 13, and 14, Granneman et al. teaches a method for the short-duration thermal treatment (Column 2, Lines 21-22) of a flat semiconductor substrate 3 to which heat is supplied on both sides at least partially through heat conduction via a heat-conducting medium comprising a first gas. (Column 3, Lines 10 - Column 6, Line 28). The heat-conducting medium is controlled individually on the two sides of the substrate in such a manner that the respective surface temperature is time-controlled taking into account the respective heat exchange via thermal radiation. (Column 3, Lines 10-65; Column 5, Lines 26-55)

Granneman et al. does not expressly teach that the heat-conducting medium is a mixture of at least two gases with very different thermal conductivities, and that it is the mixing ratio that is set individually on the two sides of the substrate to allow the time-control of the surface temperature.

Snail et al. teaches that a heat-conducting medium can be a mixture of at least two gases with very different thermal conductivities, and that the mixing ratio can be set

to allow time-control of the surface temperature of a substrate. (Column 5, Line 1 - Column 6, Line 16)

It would have been obvious to one of ordinary skill in the art to modify the method taught by Granneman et al. to have the heat-conducting medium be a mixture of at least two gases with very different thermal conductivities, with the mixing ratio be set individually (rather than the flow of a single gas) on the two sides of the substrate to allow the time-control of the surface temperature. The motivation for making these modifications, as taught by Snail et al. (Column 5, Lines 25-30, 42-46 and 58-61), would have been to allow for precision temperature control during high heat load processes, such as CVD.

In regards to Claims 3 and 4, Granneman et al. teaches that the temperature can be the same (Column 5, Lines 40-50) or different (Column 5, Line 63 - Column 6, Line 20) on the two sides of the substrate during the temperature-influencing action.

In regards to Claim 5, the combination of Granneman et al. and Snail et al. discussed above does not expressly teach that the gases can be hydrogen and nitrogen or helium and argon.

Snail et al. additionally teaches that the combination of gases can include hydrogen, nitrogen, helium, or argon (Table), and specifically teaches the combination of helium and argon (Examples).

It would have been obvious to one of ordinary skill in the art to further modify the combination of Granneman et al. and Snail et al. to have the mixture of gases be either hydrogen and nitrogen or helium and argon. The motivation for doing so, as taught by

Snail et al. (Table; Column 6, Lines 1-20; Examples), would have been to have a mixture of gases sufficiently non-reactive with the process components and with sufficiently different thermal conductivities to provide precision temperature control of the substrate during high heat load processes.

In regards to Claim 6, Granneman et al. teaches a continuous flow of gas into a gap space between temperature-influencing devices 6, 7 and the substrate. (Figures 1 and 2; Column 5, Lines 12-19)

In regards to Claim 7, Granneman et al. teaches that the gas flow is controlled by mass flow controllers. (Column 6, Lines 24-28)

In regards to Claim 8, Granneman et al. teaches that the substrate is mounted freely floating on a gas cushion formed by the gas stream associated with the underside of the substrate. (Figure 2; Column 5, Lines 12-19)

In regards to Claim 9, Granneman et al. teaches that the substrate can be driven in rotation, floating freely, by the gas stream that comprises the heat-conducting medium. (Column 6, Lines 58-64)

In regards to Claim 10, Granneman et al. teaches that the temperature control involves supply of heat. (Column 3, Lines 10 - Column 6, Line 28)

In regards to Claim 11, the combination of Granneman et al. and Snail et al. discussed above teaches that the gas composition changes over the course of time. Granneman et al. also teaches that the pressure can change. (Column 3, Lines 60-65)

In regards to Claim 12, Granneman et al. teaches that the amount of heat dissipated by the mass flow of the heat-conducting medium is negligible. (Column 5, Lines 41-47)

Conclusion

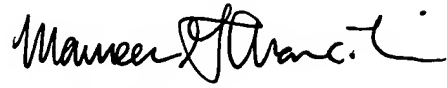
11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent 6,173,116 to Roozeboom et al. teaches that thermal processing can be performed on metal or glass substrates. (Column 4, Lines 13-16)

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maureen G. Arancibia whose telephone number is (571) 272-1219. The examiner can normally be reached on core hours of 10-5, Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571) 272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Art Unit: 1763

A handwritten signature in cursive script, appearing to read "Maureen G. Arancibia".

Maureen G. Arancibia
Patent Examiner
Art Unit 1763

A handwritten signature in cursive script, appearing to read "Parviz Hassanzadeh".

Parviz Hassanzadeh
Supervisory Patent Examiner
Art Unit 1763